

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-29 were previously canceled.

Claims 31-33, 39, 55, and 57 are canceled without prejudice or disclaimer.

Claims 30, 40, 51, 53 and 56 are amended to recite specific embodiments.

In particular, claim 30 is amended to generally recite features from claims 31-33, which are canceled. Conforming amendments are made to claims 34, 36 and 37. Claim 40 is amended to recite embodiments comprising a sealing device, as supported, for example, by original claims 1 and 18. Conforming amendments are made to claims 41, 46 and 47, and new independent claim 59 is added to recite parallel "mechanical means." A clerical amendment is made to claim 50. Claims 51 and 53 are amended to recite further characteristics of the slots, as supported, for example, in Figures 2A and 2B. Claim 56 is amended to recite further aspects of the sealing of the wells, as supported, for example, at page 33, lines 11-23, of the specification, and to include features from claim 57, which is canceled. New claim 58 is added to recite a sealing step, as supported, for example, at page 33, line 26, to page 34, line 2, of the specification.

Applicant respectfully requests entry of these amendments, which do not introduce new matter, and reconsideration of pending claims 30, 34-38, 40-54, 56, 58, and 59.

Rejections under 35 U.S.C. §§ 101, 112

Claims 39 and 55 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite, and under 35 U.S.C. § 101 for a recitation of use without setting forth any steps involved in a process. Claims 39 and 55 have been cancelled, thereby obviating these rejections.

Rejections under 35 U.S.C. § 102

The Office Action includes three separate § 102 rejections, which are addressed in turn below.

(1) Claims 40, 45, 46, 51-53, 54, 56, and 57 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,493,815 to Fernwood *et al.* (hereafter “Fernwood”). This rejection is respectfully traversed.

As reflected in independent claim 40, the rejected apparatus claims recite an apparatus for assaying effects of test formulations on at least one test membrane, comprising a donor plate including a plurality of donor wells arranged in an array, each of the donor wells including a first end sealable with the test membrane, and top openings at a second end through which the test formulations may be introduced or removed; a receptor plate mountable to the donor plate to sandwich the test membrane therebetween, the receptor plate including a plurality of receptor wells arranged in an array, each of the receptor wells including a first end sealable with the test membrane, and bottom openings at a second end through which the test formulations may be introduced or removed; and a sealing device configured to seal the top and bottom openings to retain the test formulations in the donor and receptor wells independently of an orientation of the apparatus. Fernwood does not teach or suggest such an apparatus.

Fernwood discloses a test plate assembly 1 which includes an upper template 2, a microporous membrane 3, a gasket 4, a lower template 5, and a base plate 6. See Fernwood at col. 2, line 65, to col. 3, line 2. Fernwood discloses two basic modes of operation for the assembly: forcibly drawing a fluid through the membrane, and retaining a fluid above the membrane for a prolonged period of time. See Fernwood at col. 5, lines 27-31. However, Fernwood does not disclose an apparatus comprising, for example a donor plate including a plurality of donor wells and top openings, a receptor plate including a plurality of receptor wells and bottom openings, and a sealing device configured to seal the top and bottom openings to retain the test formulations in the donor and receptor wells independently of an orientation of the apparatus, as recited in claim 40 (from which claims 45, 46, and 51-54

depend). Indeed, Fernwood does not appear to disclose any sealing device as recited in the instant claims.

As reflected in independent claim 56, the rejected method claims recite a method of assaying effects of at least one test formulation on at least one test membrane, comprising assembling a donor plate and a receptor plate to sandwich the test membrane therebetween, the test membrane generally sealing bottom openings of a plurality of donor wells of the donor plate and generally sealing top openings of a plurality of receptor wells of the receptor plate; introducing the test formulation to the receptor wells so that the test formulation contacts the test membrane from the receptor wells; sealing bottom openings of the receptor wells; inverting an orientation of the assembled donor and receptor plates; and introducing the test formulation to the donor wells so that the test formulation contacts the test membrane from the donor wells. Fernwood does not teach or suggest such a method.

For example, Fernwood does not disclose a method that includes introducing the test formulation to receptor wells, inverting an orientation of the assembled donor and receptor plates, and introducing the test formulation to the donor wells so that the test formulation contacts the test membrane from the donor wells, as recited in claim 56, or the recited sealing steps. Instead, both of the modes of operation disclosed by Fernwood require its assembly to be held in an upright position to ensure there is only one-way flow of liquid.

For at least these reasons, Fernwood does not teach every aspect of claims 40, 45, 46, 51-54, and 56. Reconsideration and withdrawal of this rejection therefore is respectfully requested.

(2) Claims 40, 45, 46, 48-53, 54, 56, and 57 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 7,494,622 to Picollet-Dahan *et al.* (hereafter "Picollet-Dahan"). This rejection is respectfully traversed.

At the outset, Applicant emphasizes that Picollet-Dahan does not qualify as prior art against the instant application under § 102(b). From the face of the patent, it appears that its earliest publication date (based on the indicated PCT publication date) is May 6, 2004, which is only a few months before the international filing date of the instant application (July 30,

2004). Thus, Picollet-Dahan at best qualifies as prior art only under § 102(e). Moreover, the earliest § 102(e) date of Picollet-Dahan (its August 28, 2003 international filing date) appears to be after the filing date of Applicant's U.S. priority application (the provisional application filed August 1, 2003). Thus, Applicant reserves the right to remove Picollet-Dahan as prior art or antedate its teachings in case the instant rejections are maintained.

Picollet-Dahan discloses a device 10 which includes a first printed circuit 11 which forms a base, a substrate 12, a second printed circuit 13 which forms a cover, gaskets 4 and 5, and clamps 6 and 7. See Picollet-Dahan at col. 11, lines 6-33. The device further includes channels 131/132 extending through the second printed circuit 13 for introducing/removing substances to/from chambers 19 defined by the printed circuits 11, 13, as shown in Figure 2 of Picollet-Dahan. The first printed circuit 11 includes microchannels 111 connected to one or more suction systems. See Picollet-Dahan at col. 12, line 65, to col. 13, line 7.

As with Fernwood, Picollet-Dahan does not disclose a sealing device configured to seal the top and bottom openings to retain the test formulations in the donor and receptor wells independently of an orientation of the apparatus, as recited in claim 40. Moreover, as with Fernwood, Picollet-Dahan does not disclose a method that includes introducing the test formulation to receptor wells, inverting an orientation of the assembled donor and receptor plates, and introducing the test formulation to the donor wells so that the test formulation contacts the test membrane from the donor wells, as recited in claim 56, or the recited sealing steps. Instead, like Fernwood, Picollet-Dahan discloses an apparatus which is held in an upright position to ensure only unidirectional flow of test fluids.

For at least these reasons, Picollet-Dahan does not teach every aspect of claims 40, 45, 46, 48-53, 54, and 56. Reconsideration and withdrawal of this rejection therefore is respectfully requested.

(3) Claim 30 is rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,888,830 to Mohan *et al.* (hereafter "Mohan"). This rejection is respectfully traversed.

Claim 30 recites an apparatus for assaying effects of test formulations on at least one test membrane, comprising a first plate including a plurality of first wells, the first wells configured so that a first end of each of the first wells is sealable with the test membrane, the first wells each including openings at a second end, at least a portion of the first wells arranged linearly in a row, and a generally cylindrical plate channel that runs generally parallel to the row of the first wells adjacent to the openings thereof; a generally cylindrical rod mounted in the plate channel of the first plate and extending lengthwise along a longitudinal axis, the rod including a plurality of rod channels that are generally perpendicular to the longitudinal axis, each of the rod channels configured to be in general alignment with a respective one of the first wells in the row, the rod rotatable about the longitudinal axis between an open position in which the rod channels allow the test formulations to be introduced or removed through the openings of the first wells in the row, and a closed position in which the rod generally seals the openings of the first wells in the row to retain the test formulations in the first wells independently of an orientation of the apparatus; and a second plate configured for assembly with the first plate so that the test membrane may be sandwiched between the first and second plates, the second plate including a plurality of second wells, each of the second wells in general alignment with a respective one of the first wells on an opposite side of the test membrane, each of the second wells including a first end sealable with the test membrane and openings at a second end that allow the test formulations to be introduced or removed. Mohan does not teach such an apparatus.

Mohan discloses a reaction station system 10 which includes an array of reaction vessels 12 and syringe tips 13 in a reaction grid assembly 14, a mounting plate 16, and a vortexer. See Mohan at col. 10, lines 1-19, and Figure 1. However, Mohan does not disclose an apparatus comprising, for example, a first plate including a plurality of first wells, and a second plate including a plurality of second wells, wherein the second plate is configured for assembly with the first plate so that the test membrane may be sandwiched between the first and second plates such that the second wells are in general alignment with a respective one of the first wells on an opposite side of the test membrane.

For at least these reasons, Mohan does not teach every aspect of claim 30. Reconsideration and withdrawal of this rejection therefore is respectfully requested.

Rejections under 35 U.S.C. § 103

The Office Action includes two separate § 103 rejections, which are addressed in turn below.

(1) Claims 30-35, 41-44, 47, 51, 52, and 54 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Fernwood in view of Mohan. This rejection is respectfully traversed.

The Office Action asserts that Fernwood teaches every aspect of the rejected claims except for the rotatable rods. As shown above, however, Fernwood also fails to teach other aspects of the claimed apparatuses.

The Office Action relies on Mohan for teaching a rod as recited in claim 30. In particular, page 6 of the Office Action asserts that the valve stem 55 of Mohan reads on such a rod, and also would also read on the recited sealing device of claim 40.

However, Mohan does not remedy the deficiencies of Fernwood, and so this combination of references does not establish a prima facie case of obviousness.

For example, Mohan does not teach a generally cylindrical rod configured to be rotated to a closed position in which the rod generally seals the openings of first wells in a first plate to retain test formulations in the first wells independently of an orientation of the apparatus, as recited in claim 30. Nor does Mohan disclose an apparatus with a sealing device configured to seal the top and bottom openings to retain the test formulations in the donor and receptor wells independently of an orientation of the apparatus, as recited in claim 40. As noted above, all of the cited references relate to devices that are configured to be held in a single orientation and provide only one-way flow of liquid. For example, the delivery manifold 20 and vacuum 39 of Mohan support a one-way flow of liquid through the device of Mohan.

In addition, the combination of Fernwood and Mohan does not teach or suggest other aspects of the claimed apparatuses, such as a rod including a plurality of rod channels that allow test formulations to be introduced or removed through openings of the first wells, or

second wells from which the test formulations can be introduced or removed. Again, because the devices of both Fernwood and Mohan are configured for one-way flow, they do not teach or suggest these aspects of the claimed apparatuses.

In summary, selecting and combining various features of the “one-way” devices of the cited references would not result in an apparatus as claimed, which provides an invertible apparatus that permits introduction of test formulation from both sides of a test membrane.

For at least these reasons, reconsideration and withdrawal of this rejection is respectfully requested.

(2) Claims 30-38, 41-44, 47-52, and 54 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Picollet-Dahan in view of Mohan. This rejection is respectfully traversed.

The Office Action asserts that Picollet-Dahan teaches every aspect of the rejected claims except for the rotatable rods. As shown above, however, Picollet-Dahan also fails to teach other aspects of the claimed apparatuses.

As with the rejection based on Fernwood and Mohan, the Office Action relies on Mohan for teaching a rod as recited in claim 30. As shown above, however, Mohan does not remedy the deficiencies of Picollet-Dahan in this respect, and so this combination of references does not establish a prima facie case of obviousness.

Like the devices of Fernwood and Mohan, the device of Picollet-Dahan is configured for only one-way flow of test formulations, and is not configured to permit introduction or removal of test formulation to or from the wells of either plate on either side of a membrane. For example, the device of Picollet-Dahan remains upright to provide the desired one-way flow.

Thus, as discussed above, selecting and combining various features of the “one-way” devices of the cited references would not result in an apparatus as claimed, which provides an invertible apparatus that permits introduction of test formulation from both sides of a test membrane.

For at least these reasons, reconsideration and withdrawal of this rejection is respectfully requested.

Conclusion

Applicant submits that the application is in condition for allowance, and an early notice to that effect is earnestly solicited

Should there be any questions regarding this submission, or should any issue remain, the Examiner is invited to contact the undersigned by telephone to advance prosecution.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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